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PSYCHE

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THE GENERIC NAMES FOR TABANIDAE (DIPTERA) PROPOSED BY ADOLFO LUTZ[1]

BY G. B. FAIRCHILD[2]
University of Minnesota

Beginning in 1905, Dr. Adolfo Lutz published a considerable number of papers on South American Tabanidae, mainly the Brazilian fauna. He had evidently intended to monograph the fauna, and did treat the *Pangoniinae*, the *Diachlorini* and the genera *Dichelacera, Stibasoma* and *Acanthocera* in a thorough way. His other publications on the family consisted mostly of local lists, descriptions of new species, and short papers outlining his views on the generic classification of the Neotropical species.

In his papers of a monographic or revisional nature, Dr. Lutz appears to have well understood the rules governing zoological nomenclature, and new names appearing in these publications are for the most part validly proposed. In his papers on general classification and in his local lists, however, which he seems to have considered of a preliminary nature, it appears that he did not realize that the names he was using were then appearing for the first time and would have to be taken into consideration by subsequent students. In many cases these names were so casually proposed, either without adequate definition or without valid included species, and almost always without bibliographic reference, that it has proven very difficult to come to a decision on their validity. In other cases, it has been difficult to decide on the year in which a certain name, published as new on several occasions, was validated.

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Several students have attempted to clarify these matters, notably Bequaert (1924) who selected genotypes of many of Lutz' genera and Borgmeier (1933) who, with better access to Lutz' published works, corrected the dates of first appearance of some of his names and added others overlooked by previous workers. Enderlein (1922, 1925) and Kröber (1932, 1934) have used a number of Lutz' names, and placed a good many more in synonymy, in some cases without adequate consideration.

In spite of these efforts, however, no complete listing of Lutz' generic names has appeared, nor has the status of a number of them ever been carefully examined in the light of the International Rules of Zoological Nomenclature. The present paper is an attempt to do this. I have seen, I believe, all of Lutz' publications, except one, which contain new generic names for Tabanidae, though there is always the possibility that others will turn up. Carlos Chagas (1925, 1929, 1934) published a list, with supplements, of Lutz' published works on all subjects numbering over 200, but even it contains some errors and omissions. His papers dealing, in whole or in part, with Tabanidae number 27, of which about 17 contain matter of nomenclatorial importance. I have appended a list of all his papers containing references to Tabanidae of which I have knowledge, but there may be others.

Lutz appears to have published, alone or jointly, 43 generic names. Some of these were variants in spelling or new names to replace preoccupied names, but 32 seem to refer definitely to newly defined groups of generic or subgeneric rank. All these names are here listed, together with references to their first appearance in print and remarks on their validity. I have not attempted to show synonymies except in a few undoubted cases, as generic and subgeneric concepts in Tabanidae are still in a rather fluid state.

The most difficult point to settle is the status of the names published in the 1909c list. This publication is an illustrated brochure or guide book giving a description of the physical plant and investigations being undertaken by the Instituto Oswaldo Cruz. It also contains lists of the collections, publications, and library. It bears no date other than the year, and no authorship. In the list of Tabanidae, 15 new generic names are proposed, being indicated by "nov. gen." or "n. gen." in all cases. 13 of these appear with valid specific names, and, although the International Rules are somewhat loosely worded on this point, I believe, ignoring other considerations, they are thereby validated. In regard to the authorship, it is now well known that Lutz was the author of this list. It is doubtful if he realized that the names appearing therein were being published in the nomenclatorial sense as he never subsequently referred to this paper although he consistently used the names proposed therein. He himself gave me my copy, and the whole list, with minor changes, was republished in 1911a, where the new genera are all credited to Lutz, according to Borgmeier. I have not been able to secure a copy of this paper, but it seems to have been also in the nature of a guidebook to the exhibit of the Instituto Oswaldo Cruz at some sort of international scientific exposition.

The difficulty in accepting these names as of 1909 lies not only in a lack of definitions, (which is of less importance, as the names were published before 1930, when the rules on this point were modified), but in the dubious character of the publication itself. The pamphlet is anonymous, it is not a periodical, nor any regular form of scientific publication, and there is much probability that it was never intended or offered for sale, though it may have had wide distribution. There is, thus, strong reason for considering that the names appearing in it were not validly published and are hence unavailable as of that date. If this stand be taken, the next chronological appearance of the names must be considered. This was the 1911a paper, which seems to have suffered from all the faults of its predecessor except anonymity. (The Pangoniinae may be excluded from further consideration, as the new genera of this division were all validly proposed with definitions or species in recognized journals in 1909, so that they date from this year in any case). If the 1911a paper be excluded from consideration nomenclatorially, the next in chronological order is 1912, where *Dicladocera,* although not defined as a genus, is accompanied by the description and figure of a valid species in a nomenclatorially acceptable publication. The difficulty here is that this species, *unicolor* Lutz, appears not to be congeneric with the species previously included, as Bequaert and Rengifo (1947 Psyche, *53* [3-4]:68) have pointed out, necessitating the use of Enderlein's *Dasychela* for the species placed by Lutz in *Dicladocera.*

Lutz' 1913a paper validates *Stigmatophthalmus* and adds *Himantostylus.* Then, also in 1913, comes the first exposition of Lutz' scheme for the classification of the Tabaninae. Here appear all the remaining names of the 1909c list, plus four additional new ones. They are not formally proposed as new genera and are not accompanied by specific names or references to previous publications, but they are recognizably defined by being placed in a key. They appear in an acceptable publication and would seem certainly available nomenclatorially as of this date. This paper was published twice, the first time above, and a year later, 1914b, where it is accompanied in parallel columns by a German translation, a common custom at that time in this journal. I can find no changes whatever in the later edition. Between the appearances of these two "editions", the 1914a paper appeared. In lists of species all the remaining 1909c names appear and are accompanied by valid specific names except *Macrocormus* while several of the names first published in 1913 are here accompanied by valid specific names for the first time. *Macrocormus* does not appear with a valid specific name in an acceptable publication until 1918, where it is listed as *"T. (Macrocormus) rubescens Bigot"* and *"Macrocormus sorbillans"*.

It is thus seen that if the names appearing in the 1909c and 1911a papers are not considered nomenclatorially available as of these dates, they became available in 1913 when they were defined, or in 1912, 1914, or 1918 when they were accompanied by valid specific names. This change in dates appears to affect but two of these names, *Dicladocera,* which changes its sense as mentioned above and *Neotabanus* which becomes a homonym of *Neotabanus* Ricardo 1911 (Rec. Ind. Mus. *4*:363, Type *N. ceylonicus* Ric. 1911). No new proposal of name for *Neotabanus* Lutz is necessary, since *Taeniotabanus* Kröber 1930 (Dipt. Pat. S. Chile P. 140, Type *T. occidentalis* Linn.) is already available. In any event the group is hardly of subgeneric rank and may eventually prove undefinable.

The author has hitherto been inclined to take a liberal view of the case and accept the 1909 dating, though for the sake of forestalling possible future controversy, it might be well to adhere to a stricter interpretation of the rules and accept 1913 as the date for these names.

Amphichlorops, Lutz 1909c, p. 29, with *A. flavus* Wied., and *A. variegatus* n. sp. 1913b, defined in key. 1914a, with *flavus* Wied., Type *T. flavus* Wied. 1828 (Bequaert 1924).

Bombylopsis Lutz 1909a, p. 31, with *nitens* (Bigot), *?analis* (Fab.) and *leonina* n. sp. 1909b, p. 646, with *erythronotata* Big., *pseudoanalis* n. sp., *analis* Fab. 1805 and *leonina* n. sp. 1909c, p. 28, with *erythronotata* Big., *?analis* Fab. and *leonina* n. sp. Type *erythronotata* Big. (Borgmeier 1933).

Bombylomorpha Lutz 1911a, p. 33, with *erythronotata* Big., *pseudoanalis* n. sp., *analis* Fab. and *leonina* n. sp. Type *erythronotata* Bigot (Borgmeier 1933).

Bombylomyia Lutz 1911b, p. 69 with *B. splendens* n. sp. descr. *Bombylopsis* changed to *Bombylomyia*. 1914a with *nitens* Big. The status of these names is confusing. *Bombylomorpha* and *Bombylomyia* may have been created to replace *Bombylopsis,* thought to be preoccupied. I have been unable to find that this name is preoccupied and Lutz and Castro 1936 have reverted to its use. The selection of *erythronotata* Big. as type of *Bombylopsis* is incorrect, as it was not included in the original publication. The only species available as genotype for *Bombylopsis* is *nitens* Bigot 1892 and it is here selected. Since both *Bombylomyia* and *Bombylomorpha* were substitute names, they take the same genotype. *Ionopis* or *Ionopsis* (q.v.) will fall as a synonym, as it has the same genotype. There is no need to replace the latter name until it becomes clear that the concept it was intended to cover is needed.

Catachlorops 1911a. emendation of *Katachlorops* (q.v.).

Chelotabanus 1913b, p. 5, in key, no species. 1914a, p. 72, with *fuscus* Wied., *impressus* Wied., *aurora* Macq., *cinerarius* Wied. 1918 with *aurora* and *impressus*. See *Odontotabanus*. Type *I. fuscus* Wied. 1819 (Bequaert 1924).

Chlorotabanus 1909c, p. 30, with *mexicanus* L. 1913b, in key, no species. 1914a, with *mexicanus* L. 1911a, with *mexicanus* L. Type *T. mexicanus* L. 1767 (Bequaert 1924).

Chrysochiton Lutz and Castro, 1936, with *auricinctus* (Lutz and Neiva) *bocainensis* n. sp., *nubiapex* (Lutz) and *rubrithorax* (Kröb.). Type by original designation, *Erephopsis auricinctus* Lutz and Neiva 1909.

Cryptotylus 1909c, with *unicolor* Wied. 1911a with *unicolor* Wied. 1913b defined in key (*Chryptotylus*). Monotypic for *T. unicolor* Wied. 1828 (Borgmeier 1933).

Dicladocera 1909c, p. 29, with *immaculata* Macq., *furcata* Wied. (*macrodonta* Macq.), *potator* Wied., *guttipennis* Wied., *macula* (*scutellata*) Macq., *luctuosa* Macq, and *rufipennis* Macq. 1911a, p. 34, with same species. 1912, with *D. unicolor* Lutz n. sp. descr. 1913b, defined in key (*Dichladocera.*) Type *T. guttipennis* Wied, 1828 (Enderlein 1922). The designation of *unicolor* Lutz by Bequaert (1924) and his subsequent restriction

(1946 p. 68) rest on the assumption that Lutz' 1909c names were invalidly published. See introductory discussion above.

Dyspangonia 1905, p. 22. defined and with *fuscipennis* Wied., *clari* n. sp., *fasciata* Macq., *lugubris* Macq., *ferruginea* Macq. 1909b p. 625=*Esenbeckia* Rond. Type *Pangonia fuscipennis* Wied. 1828 (Bequaert 1924).

Epipsila 1909b, p. 648 with *eriomera* Macq. and *eriomeroides* n. sp. descr. Type *E. eriomeroides* Lutz (Enderlein 1925).

Himantostylus 1913a, p. 183, defined and with *intermedius* n. sp. descr. Monotypic (not *Himanthostylus* Borgm. 1933).

Ionopsis 1909c, p. 28 with *nitens* n. gen. (sic) and *Foetterlei* n. sp. 1909b, p. 650 defined and with *nitens* Bigot and *Foetterlei* n. sp. described (*Ionopis*). The spelling will depend on which of these publications appeared first. Neave's Nomenclator gives *Ionopis,* while Borgmeier (1933) maintains that *Ionopsis* was the original spelling. Type *nitens* Bigot 1892 (Enderlein 1925). The type species was originally included in *Bombylopsis* Lutz 1909a (q.v.) which has some months priority.

Katachlorops 1909c, p. 29, with *fuscipennis* Macq., *rufesceus* Fab. *intereuns* Walk., *capreolus* Wied. and *bitinctus* Walk. 1911a, p. 34. with same species. 1913b, defined in key only (*Cathachlorops, Gatachlorops*) Type. *Dichelacera fuscipennis* Macq. 1847 (Bequaert 1924). The emended spelling *Catachlorops,* has largely prevailed.

Laphriomyia 1911b, p. 70. defined and with *mirabilis* n. sp. descr. The erroneous variant *Laphriopsis* appears on p. 71. 1911a p. 34 (*Laphromyia*) Monotypic for *L. mirabilis* Lutz 1911.

Leptotabanus 1914a, p. 72, with *nigrovenosus* Lutz in list of Tabanidae from Xerem. 1918, in list only, no authority. 1921, in list only, no authority. The species seems never to have been described, though it is possible that *Melanotabanus fuliginosus* Lutz and Neiva (q.v.) was based on the same specimen. It is described in the same paper from a single specimen from Xerem, Rio de Janeiro, and the authors state in the paragraph preceding their list of Tabanidae from Xerem that the list includes a new species based on one specimen from Xerem. *Leptotabanus nigrovenosus* is the only new species in this list. Since the name is invalid, a nomen nudum, as listed by Neave, it does not preoccupy *Leptotabanus* Kröber 1931 as believed by Miller (1945), who proposed the unnecessary name *Neoleptotabanus* (Proc. Roy. Ent. Soc. London (B) *14*:72).

Leucotabanus 1913b, defined in key. 1914a, p. 71, with *leucaspis* Wied. in list. 1914b, defined in key. Type *Tabanus leucaspis* Wied. 1828 (Bequaert 1924)).

Macrocormus 1909c, p. 29, with *badius* n. sp. *sorbillans* Wied., *pseudosorbillans* n. sp. and *trizonophthalmus* n. sp., 1911a, p. 35 with same species. 1913b, defined in key. Type *Tabanus sorbillans* Wied., 1928 (Bequaert 1924).

Melanotabanus 1914a, p. 76. defined and with *fuliginosus* n. sp. described. Monotypic.

Micropangonia 1922, p. 5, defined briefly by comparison with *Erephopsis*. Said to contain two species, but none named. I believe this to be a *lapsus* for *Neopangonia* Lutz (q.v.) as the characters mentioned (open first posterior cell, long proboscis and small size) are those used earlier to separate *Neopangonia* from "*Erephopsis*". Since the name could be construed as having been defined, and hence valid, I hereby select *Neopangonia pusilla* Lutz 1909 as genotype, as it agrees with the definitions, thus making *Micropangonia* a synonym of *Neopangonia*.

Microtabanus 1922, p. 9, defined only by having unicolorous eyes and being small. No species. This can hardly be construed as a "definition" under the rules, and I consider the name invalid and not preoccupying *Microtabanus* Fairchild 1937.

Myiotabanus 1928, p. 59, with *sarcophagoides* n. sp. descr. and fig. Although there is no statement that the genus is proposed as new, it is combined with a valid specific name and I believe should be considered valid. Monotypic.

Neopangonia 1909b, p. 651, defined and with *pusilla* n. sp. descr. and fig. Monotypic. See also *Micropangonia*.

Neotabanus 1909c, p. 29, with *trilineatus* Latr., *modestus* Wied. and 16 other named species. 1911a, with same species. 1913b, defined in key. 1914a, with *obsoletus* Wied., *comitans* Wied., *ixyostactes* Wied., *ochrophilus* Lutz, *triangulum* Wied., *trilineatus* Latr. and others in list. Type *Tabanus trilineatus* Latr. 1814 (Bequaert 1924).

Odontotabanus 1918 Lutz, Araujo and Fonseca, with *aurora, cinerarius, fuscus*. 1926 Bequaert, Exped. Amazon, p. 233, cited in synonymy with ***aurora***. Lutz 1928, p. 56-57, with ***cinerarius*** Wied., ***testaceus*** Macq., ***olivaceiventris*** Macq., and ***importunus*** Wied. in list. Type ***aurora*** Macq. 1838 (Borgmeier 1933). Doubtfully distinct from ***Chelotabanus***; Lutz used both names interchangeably in 1918.

Orthostylus 1914a , p. 74, defined and with ***ambiguus*** n. sp. descr. Monotypic. Preoccupied. See below.

Orthostyloceras Lutz in Borgmeier 1933, p. 298. New name for *Orthostylus* Lutz and Neiva, not *Orthostylus* Beck 1837 Mollusca. Type *ambiguus* Lutz and Neiva 1914.

Phaeoneura 1909a, p. 645, defined in key and with *basilaris* Wied. sole species. 1909c, p. 29, with *basilaris* Wied. in list. 1911b, with *basilaris* in list (in German translation the name is *Phaeomyia*, evidently a *lapsus*).

Phaeotabanus 1913b, defined in key. 1914a, in list with *litigiosus* Walk., *aphanipterus* Wied. Type *Tabanus litigiosus* Walk. 1850 (Bequaert 1924).

Poecilosoma 1909c, in list with *punctipenne* Macq., *quadripunctatum* Macq., *histrio* Wied., and *cinereum* Wied. 1911a, same species. 1913b, defined in key. Type *Tabanus quadripunctatus* Fab. 1805 (Bequaert 1924). (The name is four times preoccupied).

Poeciloderas 1921, in list with "*quadripunctatum*". Type *T. quadripunctatus* Fab. 1805 (Borgmeier 1933).

Poecilochlamys 1922, briefly defined and in key. 1928, in list with *quadripunctatus* Fab. Type *T. quadripunctatus* Fab. (Borgmeier 1933). The key is the same as the 1913 key, and this name replaces *Poecilosoma* in it.

Pseudocanthocera 1913b, in key, no species. 1914a, in list with *marginata* Macq., *Silveirii* Macq. Type *Silvius Sylveirii* Macq. 1838 (Enderlein 1925).

Plesiophthalmus 1911a (not seen), with *fenestratus* Lutz undescribed. Monotypic. Nomen nudum. Preoccupied by Motschoulsky 1858 Coleopt. (Borgmeier 1933).

Pseudoscione 1918, in list as *Pseudoscione longipennis* Ricardo. No description. 1928, p. 54, proposed for *Diatomineura longipennis* Ricardo and an unnamed species from Ecuador. Species said to resemble *Scione* but have venation like *Diatomineura*. No statement that genus is proposed as new. Genotype *Diatomineura longipennis* Ricardo 1902 here designated.

Rhabdotylus 1909c, p. 29, with *viridiventris* Macq. and *planiventris* Wied. 1913b, defined in key. 1914a, with *viridiventris* Macq. in list. Type *T. planiventris* Wied. 1828 (Bequaert 1924).

Stenotabanus 1913b, defined in key. 1914a, with *taeniotes* Wied. in list. Type *T. taeniotes* Wied. 1828 (Bequaert. 1924).

Stictotabanus 1914, in list with *anonymous* n. sp. and *maculipennis* Macq. 1918 in list with *conspicuus* n. sp., no description. 1922, defined as having unicolorous eyes and a spot on the transverse veins; no species. Borgmeier 1933 gives type as *T. maculipennis* Macq. 1834, but this is unjustified, as there are two Macquart species of this name and Lutz did not specify. See also Bequaert 1924, Enderlein 1925. *Maculipennis* Macq. is invalid. (nec Wied. 1828). The name is very doubtfully valid.

Stigmatophthalmus 1909c, with *altivagus* n. sp. in list. 1911a. (not seen). 1913a, with *altivagus* n. sp. descr. and fig. Monotypic.

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A NEW *LEPTOTHORAX* FROM ALABAMA (HYMENOPTERA: FORMICIDAE)[1]

By Edward O. Wilson
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Leptothorax (Myrafant) tuscaloosae, new species

Holotype worker. - Total length approximately 1.9 mm.; length of alitrunk, measured from the dorsal base of the pronotal collar to the tip of the posterior propodeal flange, 0.554 mm.; length of head, measured in profile from the anterior margin of the clypeus to the extreme occipital border, 0.512 mm.; cephalic index 93.5. (All measurements except total length given in this description with a maximum error of ±0.016 mm.)

Eye oval, moderately prominent, with nine ocelli across its greatest length, located nearer the anterior than the posterior border of the head. Head subrectangular, with weakly convex posterior border, rounded posterior angles, and weakly convex, subparallel sides. Clypeus depressed, 1.2 times longer than broad, its anterior border rounded and entire. Antenna eleven-segmented; scape failing by approximately its greatest width to meet the occipital angle; funicular club three-jointed, as long as the remainder of the funiculus, the apical segment longer than the preceding two combined. Mandible with five teeth, the apical tooth the largest. Alitrunk slender, seen from above 0.272 mm. across its greatest width at the pronotum, evenly arcuate in profile, sloping to the base of the propodeal spines; humeri well rounded; pro-mesonotal and meso-epinotal sutures absent; other thoracic sutures weak or absent. Propodeal spines slender and acute, slightly and gradually curved inward and downward, approximately as long as the declivious face of the propodeum, the basal portions in profile forming an angle of approximately 120° with the basal face of the propodeum, their bases 0.096 mm. apart. Femora and tibiae noticeably incrassated. Petiolar node in profile with anterior face concave, and meeting the dorsal face in a bluntly rounded angle. Dorsum of postpetiole 1.5 times broader than long, not constricted in posterior half, with subparallel sides.

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[1] Published with a grant from the Museum of Comparative Zoology at Harvard College.

Mandibles covered dorsally by close-set, longitiudinal striae. Clypeus with a dark median carina running from anterior to posterior border; the remainder of the clypeus more or less longitudinally rugulose. Frontal area, frontal lobes, and cheeks rugulose. Remainder of head, most of the thorax, and the gaster moderately shining, with extremely fine punctures. Propodeum and meso- and metasternal regions of thorax rugulose, the rugulae of the declivious face of the propodeum transverse. Petiole and postpetiole densely and coarsely granulose.

Body covered by moderately abundant, long, coarse, grayish, erect hairs. Antennae with moderately abundant, short, very fine hairs over entire surface; many of these hairs on funiculus and a small number on scape suberect to erect but the majority appressed. Legs with a sparse growth of hairs similar to those on antennae; most of these appressed by a scattered few suberect to erect.

Body dark brown; mandibles, antennae, and legs pale yellow; femora infuscated over entire surface except for ends.

Gynetype. - Differing from the worker in the usual characters separating these two phases. Total length approximately 2.7 mm., length of alitrunk 0.912 mm., greatest width of alitrunk 0.576 mm., length of head 0.568 mm., cephalic index 100. Propodeal spines short and robust, their length less than the distance between their bases and approximately half the length of the declivious face of the propodeum. Sculpturing, pilosity, and color essentially the same as in the worker.

Type locality. - Tuscaloosa, Alabama.

The holotype worker, the gynetype, and forty-two paratypes consisting of seven dealate queens and thirty-five workers were collected by the author August 20, 1947, in a small patch of woods directly north of Guthrie's Nursery, which is at the Tuscaloosa Memorial Cemetery near the outskirts of the city.

Additional locality: Elrod, Tuscaloosa Co., Ala. Thirteen paratypes consisting of two dealate queens and eleven workers were collected by Barry D. Valentine and the author May 10, 1949, in the Sipsey River swamp several miles east of the town.

The paratypes of this small species vary from the holotype and gynetype noticeably in color and size. Callows are pale yellow, with infuscated head, gaster, and femora. The other specimens in the type series vary from medium to dark, almost piceous, brown. The mandibles, antennae, and legs of all are pale yellow, the femora infuscated. Total length in the workers varies (approximately) from 1.9 mm. to 2.1 mm.; length of alitrunk varies from 0.554 mm. to 0.684 mm.; with a mean of 0.609 mm.; length of head varies from 0.505 mm. to 0.570 mm., with a mean of 0.530 mm. Total length in the queens does not possess variability sufficient for measurement, which is somewhat dependent on the degree of distention in the gaster; length of alitrunk varies from 0.929 mm. to 0.962 mm., with a mean of 0.942 mm.; length of head varies from 0.570 mm. to 0.603 mm., with a mean of 0.590 mm. The workers from Elrod are notably larger on the average than the ones from Tuscaloosa: mean length of alitrunk 0.649 mm. as opposed to 0.600 mm., mean length of head 0.549 mm. as opposed to 0.524 mm.

The holotype, the gynetype, and twelve paratypes have been deposited in the United States National Museum under U. S. N. M. No. 60339. Paratypes are in the collections of the author, the Museum of Comparative Zoology at Cambridge, and the University of Alabama.

Dr. M. R. Smith has very kindly examined types of the new species and has expressed the opinion that its closest morphological affinities are apparently to *Leptothorax* (*Myrafant*) *curvispinosus* Mayr. It can be distinguished from that species by its differently shaped propodeal spines and petiole, its smaller size, much darker body coloration, and feebler cephalic and thoracic sculpturing. Because of the shining dorsal surface of the head, the new species runs down to *L.* (*M.*) *longispinosus* Roger in W. S. Creighton's recent key of the North American *Leptothorax* (*The Ants of North America,* Bull. M. C. Z., Vol. 104). It can be distinguished from *longispinosus* by its smaller size, different coloration (mandibles, antennae, and legs in *longispinosus* moderately brown), feeble thoracic sculpturing, and shorter and more elevated propodeal spines (the spines of *longispinosus* form an angle of nearly 180° with the dorsum of the propodeum when viewed in profile).

The Tuscaloosa colony was found in a small cavity in a bank of earth under a bed of moss. It was at the base of a large oak in an open area fringing a bay-gum swamp. The Elrod colony was found in a small cavity in the earth covered partly by an overhanging root and party by thin leaf litter. It was in a densely shaded area also on the fringes of a bay-gum swamp. Stray workers were taken during the day on low bushes near both nests.

ADDITIONS TO THE NEARCTIC MELOIDAE (COLEOP.)[1]

By F. G. Werner

Harvard University and University of Vermont

Among specimens sent for determination by several institutions and collectors are three striking additions to our fauna, which are described below.

Epicauta cicatrix sp. n.

Figure 5

This, the thirteenth member of the *caviceps*-group, is the only one of the group thus far known from the Big Bend region. It can be distinguished from the other members, and from all other Nearctic and Neotropical members of *Epicauta*, by the form of the second antennal segment (see fig. 5).

Length: 8 to 12 mm. Black, moderately densely clothed with cinereous to yellow-cinereous pubescence, except for the black markings at the base of the elytra and on the abdomen which are characteristic of the group, and a partially denuded spot on the temporal angles of the head.

Head broad, 2/5 broader across the eyes than from vertex to clypeus, tapering from just behind the eyes to the broadly rounded temporal angles. Surface moderately densely punctured and strongly microreticulate, appearing fairly shiny. Median impressed line narrowly denuded, distinct down to the level of the eyes. Antennal calluses small, denuded, shiny. Eyes prominent, slightly oblique but unmodified, 3/5 as wide as high, as seen from side, with a narrow denuded zone surrounding them. Pubescence short on top of head, very short and fine, black on the patch on the temporal angles. Rest of head with rather coarse pubescence.

Antennae tapering gradually, with the intermediate segments stouter and the apical segments more slender in the ♂ than in the ♀. ♂ antennae slightly more than three times as long as anterior tibia; segment I stout, reaching 1/4 across eye; II 2/3 as long as I, posteriorly flattened and smooth, the base of the flattened area

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[1] Published with a grant from the Museum of Comparative Zoology at Harvard College.

with a transverse oval scar-like area, slightly elevated from the rest of the surface. This scar-like area has the surface roughened and with some very short erect hairs. Segment III 1½ times as long as I, almost circular in cross-section and slightly curved posteriorly; IV as long as I, almost tubular; rest decreasing gradually in thickness and almost imperceptibly in length; XI 2/3 as wide as III, 1/3 longer than X. ♀ antennae 2 3/5 as long as an anterior tibia; segment I reaching to just beyond the margin of the eye, the rest bearing approximately the same proportion to I as in the ♂ but more slender basally and not tapering as much, so that XI is only 3/4 as wide as III.

Pronotum quadrate, 1/10 broader than long. Sides straight, diverging slightly from base to 1/3 from apex, then forming a fairly sharp angle, converging abruptly to the collar, which projects forward slightly. Surface densely punctured and microreticulate. Disc elevated in the center into a low hump; from the central hump a set of more or less well-defined ridges project as follows: anteriorly a strongly elevated ridge, sometimes higher than the hump near its base; laterally a weak pair tending anteriorly and ending in a pair of feeble elevations on the edges of the disc; posteriorly a weak pair directed toward the posterior angles, leaving the middle of the base more or less excavated. Pubescence of disc confused, directed generally away from the central hump, toward the lateral elevations and often in a pair of whorls anteriorly.

Elytra with black scutellar markings extending across the base and forming a very weak humeral spot of a few hairs. Suture elevated on the basal 1/4 and apical 1/3. Underside with anterolateral black spots on sternites II to IV, sometimes also on I and V, posterior midventral spots on II to IV, often on V in the ♂, reduced to one spot, on III, in one ♀. Middle and posterior trochanters and femora of ♂ denuded behind, the denuded area having scattered short black hairs and margined above with long cinereous hairs; the femora slightly bowed, the middle femora more than the posterior. Posterior tibial spurs slender, sticklike.

Holotype: ♂, Presidio, Texas, Nov. 14, 1944, J. H. Russell (USNM).

Allotype: ♀, eutopotypical (USNM).

Paratypes: 27 eutopotypical, 3 topotypical, Nov. 6, 1944, 6 Nov. 8, 1947, 18 Nov. 27, 1948. Distributed in the USNM, MCZ, (No. 28502), in the collections of the author and F. H. Parker. All taken about a mile from Presidio, in the valley flat of the Rio Grande, on flowers and leaves of a yellow-flowered composite, *Viguiera stenoloba.*

Lytta mirifica sp. n.

Figures 1,3

This is one of the most striking new species of *Lytta* to turn up in the United States since the revision of the genus by Fall. The type locality, Anthony, N.M., is in the Rio Grande valley, about ten miles north of El Paso, Texas. The species probably ranges over at least the adjacent area of Mexico but cannot be very widespread in the United States or it would certainly have been collected before.

Length: 16 to 25 mm. Stout, black, with brick-red pronotum. Almost glabrous above, with some short, erect black pubescence below. Elytra coarsely reticulate, as in *reticulata* Say. Intermediate segments of ♂ antennae somewhat lengthened and thickened. In Fall's key[2] this species would go to Group I, near *ulkei* Horn. However, it is unique in our fauna in combination of color pattern and elytral reticulation.

Head subquadrate, 9/10 as long from vertex to clypeus as wide just behind the eyes, with scattered coarse punctures, fine punctulation and deep microreticulation, appearing roughened but somewhat shiny. Median impressed line distinct above, becoming weak or obsolete toward the clypeus. Eyes half as wide as high as seen from the side. Clypeus and labrum sculptured like head but with denser pubescence; labrum feebly emarginate.

♂ antennae (fig. 1) half as long as body from vertex to tip of elytra, reaching basal fourth of the elytra. Intermediate segments elongate-moniliform, longer and stouter than in the ♀, particularly IV to VI. Segment I stout, reaching 1/4 across the eye; II short, 3/8 as long as I, strongly constricted at base, particularly externally; III 5/6 as long as I, normal; IV 1/5 longer than II, slightly swollen; V equal to IV or slightly longer, slightly thicker; VI to X decreasing slightly in length and thickness; XI 1/10 longer than I and slightly thicker than X.

♀ with first antennal segment stout, twice as long as broad and reaching 1/4 across eye; II short, 3/8 as long as I and constricted as in ♂; III 3/4 as long as I and 4/5 as thick; IV 9/10 as long as I; V to VII decreasing in length; VII to X approximately equal, 1/3 as long as I; III to XI gradually increasing in thickness, X being

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[2] Fall, H. C., 1901, Trans Am. Ent. Soc. 27:295.

1/3 thicker than III; XI stout, slightly thicker and almost 4/5 longer than X.

Pronotum 1/10 broader than long, hexagonal, angulate at the sides just before the middle, with scattered coarse punctures, fine punctulation and shallow microreticulation, appearing smooth and feebly shiny. Disc flattened, with a feeble median impressed line, a pair of feeble impressions laterally behind the middle and one in the center of the base. Basal impressed line distinct.

Elytra coarsely reticulate, with the ridges of the reticulations narrow. The entire surface is punctulate and microreticulate, appearing dull and roughened. Underside entirely black, more densely punctured and pubescent than above. Anterior tibiae with two slender apical spurs in both sexes. Middle tibiae bowed; posterior tibiae slightly bowed, with the inner apical spur slightly broadened, the outer broad and longer, both obliquely excavated. ♂ with the sixth abdominal sternite with a V-shaped notch which extends forward as a feeble groove; pygidium normal, rounded apically; aedeagus (fig. 3) flattened, with two recurved spines.

Holotype: ♂, Anthony, New Mexico, June 21, 1941, R. H. Crandall (MCZ No. 28500).

Allotype: ♀, eutopotypical (MCZ).

Paratypes: 20 ♂♂, 11 ♀♀ topotypical, May 23 to July 15, 1941, R. H. Crandall. In the collections of Cornell University, F. H. Parker and the author.

Lytta navajo sp. n.

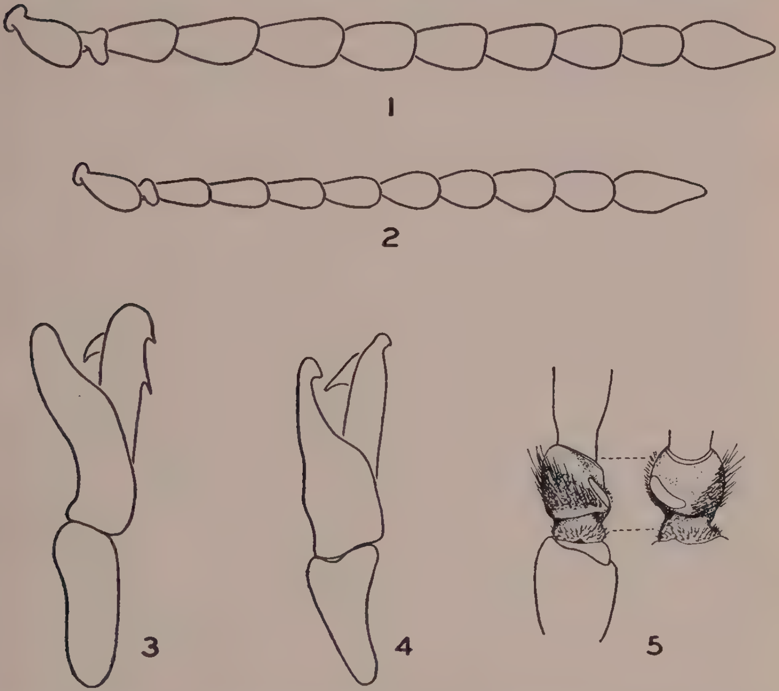
Figures 2,4

Length: 16 to 23 mm. Moderately stout, deep blue-black except for a small orange frontal spot on the head, semi-opaque and with the elytra scabrous. In Fall's key (footnote 2) this species runs to Group II, couplet 1, but differs from all of the species listed there in being all blue-black, having the elytra scabrous and the metatrochanters of the ♂ not spinose. Entire surface deeply microreticulate, appearing dull. Head and pronotum with some short, erect pubescence; elytra almost glabrous; underside with slightly longer pubescence than head and pronotum.

Head triangular, widest at the temporal angles, 1/5 broader than long, with dense, moderately deep but small punctures, somewhat uneven on the disc. Median impressed line distinct down to the level of the hind margin of the eyes. Eyes slightly more than half as wide as high as seen from side. Clypeus with a broad transverse basal impression, and with sculpture like head; labrum smoother, feebly emarginate.

♂ antennae (fig. 2) 2/5 as long as body from vertex to tip of elytra, almost the same as in the ♀, becoming gradually stouter apically. Segment I moderately stout, reaching 1/3 across eye, with the apex oblique; II short, 3/8 as long as I; III 9/10 as long as I; IV to X subequal to III in length, becoming moniliform: XI 2/5 longer than I, sharply pointed. The antennae of the ♀ are essentially like those of the ♂.

Pronotum 1/7 broader than long, about as wide as head, flattened and roughened on the disc, widest at apical third. Sculpture similar



Figs. 1-5. Fig. 1. *Lytta mirifica* sp. n., ♂, right antenna. Fig. 2 *Lytta navajo* sp. n., ♂, right antenna. Fig. 3. *Lytta mirifica,* ♂, genitalia, from right side. Fig. 4. *Lytta navajo,* ♂, genitalia, from right side. Fig. 5. *Epicauta cicatrix* sp. n., second segment of right antenna, dorsal and posterior views.

to head except toward middle of disc, which is smoother. Base with a strong transverse impression. Median impressed line feeble.

Elytra coarsely scabrous, with very feeble costulae, one near the margin, another arising one third of the way from the humeri to the suture and a third arising near the scutellum. Legs stout, with the tibiae flattened, the middle and posterior tibiae bowed in both sexes. Outer spur of the posterior tibiae broad, the inner slender. ♂ with sixth abdominal sternite deeply and sharply notched, fifth broadly and feebly notched; aedeagus (fig. 4) constricted near apex, and with a small double recurved spine.

Holotype: ♂, 22 mi. N. of Cameron, Coconino Co., Arizona, May 19, 1949, H. Epson, feeding on *Astragalus*. (MCZ No. 28501).

Allotype: ♀, eutopotypical (MCZ).

Paratypes: 1 ♂, 2 ♀♀, eutopotypical, in the collections of the University of Wyoming, F. H. Parker and the author.

RECORDS AND FLOWER PREFERENCES OF MASARID WASPS (HYMENOPTERA: VESPIDAE)

By

Kenneth W. Cooper (Princeton University)

and

J. Bequaert (Harvard University)

The observations which follow on the masarid wasps in Colorado are based largely upon collections made (by KWC) in the vicinity of the Science Lodge of the University of Colorado during the interval July 26—August 21, 1949. Additional flower records and information upon eleven species of *Pseudomasaris* from Arizona, California, Oregon, South Dakota, Texas and Utah, as well as from Colorado, are included (by JB) from previously unpublished notes. All records, therefore, rest on the authority of Dr. J. Bequaert if they are not initialled "(KWC)".

Science Lodge, it should be remarked, is located at the margin of Arapaho Moraine, below Mount Niwot, approximately eight miles NNW of the town of Nederland, Colorado, at an altitude of 9,528 ft., just three miles East of the Continental Divide. It is thus in the uppermost fourth of Ramaley's "Montane Zone", heavy stands of lodgepole pine characterizing the region. Road margins and clearings were frequently densely populated with flowers very attractive to aculeate Hymenoptera, and collecting could hardly have been better. The varied terrain with predominantly ponderosa pine-Douglas fir forests below, subalpine fir-Engelmann spruce stands and tundra above, all make Science Lodge located in the intermediate lodgepole pine forest ideally situated as a central base for the field naturalist.

The records which follow may be added to those of Bradley (1922) and Bequaert (1929, 1940, 1943). As many of the older records of *Pseudomasaris* flower preferences are today uncertain because of obvious misidentification of the plant concerned, it is very important that all new records be validated by authority. The

Penstemon[1] species recorded from Colorado (by KWC) were all checked or identified by the well known authority on the Scrophulariaceae, Dr. Francis W. Pennell of the Academy of Natural Sciences, Philadelphia, Pa. The Colorado *Phacelia* were likewise checked by Prof. Robert Prettyman of Butler University. *Phacelia sericea* and *Ph. ramosissima* were named by Dr. R. E. Schultes, of Harvard University, from dried specimens. Dr. C. D. Michener supplied the name *Phacelia popei* for the record of *Pseudomasaris texanus,* and Dr. J. Bequaert determined the *Ph. californica* from fresh material.

Of the 11 species mentioned below, the first three are all that are known from Colorado. The Colorado captures are set off from other records in separate paragraphs for ease of reference.

1. *Pseudomasaris* (*Toryna*) *vespoides* (Cresson)

COLORADO: Hill's Mill (directly above Science Lodge, 10,000 ft.), 1 ♂ sunning on open, gravelly ground, at 9 AM, July 26 (KWC); Rainbow Lakes, 10,000 ft., 7 ♂ and 6 ♀ at *Penstemon alpinus* Torr., 11 AM to 4 PM, and 1 ♂ at *Penstemon unilateralis* Rydb., 9 AM, July 30 (KWC); Gold Hill, 8,300 ft., 1 ♂ and 2 ♀ at *Penstemon alpinus,* 8:45 AM, Aug. 6 (KWC); vicinity of Science Lodge, 9,500 ft., 2 ♀ within flowers of *Penstemon alpinus,* 11:20 AM, Aug. 13, and 1 ♀ sunning at road margin, 8 AM, Aug. 14 (KWC); Poudre River Canyon, 9 ♂ (L. D. Anderson); Creede, 8,844 ft. (S. J. Hunter); Pike's Peak, 1 ♀ and 1 ♂ (L. Bruner); Ute Creek, Sage Flats (L. Bruner); Grand Junction, 1 ♂ (L. Bruner); La Junta, 1 ♀ (Lantz); Florissant, at *Penstemon* sp. (S. A. Rohwer).

OREGON: Hood River, 1 ♂ (J. Nottingham); Milton, 2 ♂, June 22, 1938 (K. Gray and J. Schuh); 10 miles West of Bend, 1 ♂, June 21, 1939 (K. Gray and J. Schuh); Hart Mountain, 1 ♀, June 17, 1938 (K. Gray and J. Schuh); Cornucopia, 6,200-7,000 ft., 1 ♀ at *Penstemon* sp., July 25, 1936 (H. A. Scullen). CALIFORNIA: Auburn, many ♂ ♀ (L. Bruner); San Jacinto Mts., 1 ♀ (R. M. Beamer); Altadena, 2 ♂ (KWC); Pasadena, 1 ♀ at cultivated *Penstemon azurea* Benth. (tentative determination by A. H. Sturtevant), June 9, 1945 (KWC). UTAH: Provo (T. Spalding). SOUTH DAKOTA: Custer; Whitewood; Spearfish, 1 ♂, July 15, 1924. WYOMING: about 10 to 15 miles W. of Cheyenne, on the highway to Laramie, 8,500 ft., Albany Co., August 11, 1949, and August 10,

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[1] We follow Pennell (1935, Ac. Nat. Sci. Philadelphia, Monograph 1, p. 200) in using *Penstemon,* rather than *Pentstemon* or *Pentastemon.*

1950, at *Penstemon unilateralis* (R. R. Dreisbach); flower determined by Dr. F. W. Pennell; both ♀ and ♂ very numerous while the sun was shining, visiting the flowers; none were at the flowers while it was cloudy.

This species is one of the most widely distributed of the genus, being known at present from Oregon, California, Nevada, Wyoming, Idaho, South Dakota, Utah, Colorado, Nebraska, Arizona and New Mexico. Its true foodplants appear to be several species of *Penstemon,* as discussed elsewhere. In this connection, Cresson (1864) states that Ridings collected *Ps. vespoides* near Empire City, Colorado, at flowers of "a plant allied to the genus *Lobelia,* growing abundantly on the roadsides." This was evidently a *Penstemon.*

The extent of the yellow marking varies greatly. Females from California are often more yellow than those from Colorado, sometimes even showing short yellow longitudinal streaks on the mesonotum before the scutellum. Some females are nevertheless practically colored alike in both geographic regions, so that it does not seem possible to segregate the very xanthic specimens as a distinct geographical subspecies. Moreover the specimen with the greatest extent of yellow is a female from Arizona (White Mesa, Kayenta), which not only has very wide abdominal bands, but also has most of the pronotum, scutellum, postscutellum, propodeum and pleura yellow, curved yellow lines along nearly the entire notauli and side lines near the tegulae on the mesonotum. Such extreme variants are very similar to *Ps. wheeleri.* If the need were felt for a special name, they should be called var. *robertsoni* Cockerell.

2. *Pseudomasaris* (*Pseudomasaris*) *marginalis* (Cresson)

Colorado: Moraine below Hill's Mill, 9,800 ft., 1 ♀ at *Phacelia heterophylla* Pursh, 10 AM, July 27 (KWC); Rainbow Lakes, 10,000 ft., 3 ♂ and 2 ♀ at *Phacelia heterophylla,* 9 AM to 2 PM, July 30 (KWC); vicinity of Science Lodge, 9,500 ft., 1 ♀ sunning on open, sandy bank of road, 9:25 AM, Aug. 5 (KWC); Sierra Blanca (L. Bruner); Ute Creek (L. Bruner); Cascade Lodge, Rocky Mountain National Park; Echo Lake, 12,000 ft., 1 ♀ (R. R. Dreisbach and R. K. Schwab).

Utah: Bear River, North slope of Uinta Mts., 8,000 ft., 2 ♂ and 3 ♀ at *Phacelia sericea* (Graham) Gray, June 27, 1949 (F. Werner and W. Nutting).

Known from British Columbia, Alberta, Utah, Colorado and New Mexico. The food plants are species of *Phacelia.*

3. *Pseudomasaris* (*Ps.*) *zonalis* (Cresson)

Colorado: vicinity of Science Lodge, 9,300 ft., 2 ♂ and 3 ♀ at *Phacelia heterophylla* Pursh, 7:45 to 11:30 AM, July 28, and 2 ♂ and 1 ♀ at *Phacelia heterophylla,* 10:15 to 10:45 AM, Aug. 5 (KWC); Rainbow Lakes, 10,000 ft., 3 ♂ at *Phacelia heterophylla,* 1 PM, July 30 (KWC); Gold Hill, 8,300 ft., 1 ♀ at *Phacelia heterophylla,* 8:50 AM, Aug. 6 (KWC); Mont Alto, 8,000 ft., 1 ♀ at *Phacelia heterophylla,* 1 PM, Aug. 6 (KWC); Boulder, 1 ♀ at *Besseya plantaginea* (Benth.) Rydb., May 15, 1908 (S. A. Rohwer).

Oregon: Cornucopia, 6,200 to 7,000 ft., 1 ♀, July 25, 1936 (R. E. Reider); Mt. Hood, 1 ♂ (J. Nottingham); 5 miles west of Suttle Lake, 1 ♂, July 8, 1939 (K. Gray and J. Schuh). California: Lassen National Park, 1 ♂ (C. T. Brues); Emigrant Gap, 1 ♀ (M. Cazier).

Known at present from British Columbia, Washington, Oregon, California, Nevada, Idaho, Utah, Colorado and Nebraska. The normal foodplants appear to be species of *Phacelia* and possibly *Besseya.* Aside from Cresson's (1864) remark that Ridings discovered *Ps. zonalis* in August "on a plant most likely to be of the genus *Phacelia,*" the above flower records appear to be the first definite observations on the flower choice of this species. It is of interest that Ridings also found *Ps. marginalis* on the same *"Phacelia"* as *Ps. zonalis.*

4. *Pseudomasaris* (*Ps.*) *occidentalis* (Cresson)

Known from Kansas, New Mexico and Texas. Its only known foodplants are *Penstemon.*

5. *Pseudomasaris* (*Ps.*) *coquilletti* Rohwer

California: Marsh Creek, Mount Diablo, 1 ♂ and 1 ♀ at *Phacelia californica* Cham., April 20, 1949 (R. M. Bohart). Arizona: Upper Basin, Sabino Canyon, Sa. Catalina Mts., 4 ♀ at *Phacelia ramosissima* Dougl., April 22, 1949 (JCB).

Known only from California and Arizona thus far. The foodplants are species of *Phacelia* and *Eriodictyon.*

6. *Pseudomasaris* (*Ps.*) *wheeleri* J. Bequaert

California: Yosemite, 1 ♀, June 12, 1925 (A. L. Melander); Big Pine Creek, Inyo Co., 1 ♀ at *Penstemon* sp. (R. M. Bohart); Charleton Flats, 6,000 ft., Los Angeles Co., 1 ♂ and 1 ♀ (KWC);

Chilao, 6,000 ft., Los Angeles Co., 1 ♀, July 23, 1944 (A. H. Sturtevant).

Known only from California. It seems to use as foodplants both *Eriodictyon* and *Penstemon.*

7. *Pseudomasaris* (*Ps.*) *edwardsii* (Cresson)

California: San Jacinto Mts. (R. H. Beamer); Deep Creek, at edge of Mohave Desert, at *Eriodictyon tomentosum.* Utah: Eureka.

Known from Washington, California, Nevada and Utah. Visits both *Eriodictyon* and *Phacelia.*

8. *Pseudomasaris* (*Holopticus*) *texanus* (Cresson)

Texas: Big Bend National Park, Chisos Mts., 3 ♀ at *Phacelia popei* Torrey and Gray, April 11, 1949 (C. D. Michener and R. M. Beamer).

Typically *Ps. texanus* has part of the thorax (particularly on the pronotum) and part of the abdomen ferruginous-red; but the extent of this color varies. It is usually more developed in the females, and even in Texas some males are almost without reddish coloration. The other pale markings are decidedly yellowish. *Ps. texanus* appears to occur only in Texas and New Mexico. The published records from California and Arizona, and probably also those from Utah, should be referred to *Ps. rohweri,* which is possibly only a subspecies of *texanus* (see below). The normal foodplants are most likely species of *Phacelia,* although there is as yet but one definite observation.

9. *Pseudomasaris* (*H.*) *rohweri* Bradley

California: Westgard Pass, Inyo Co., many ♂ and ♀, at *Phacelia* sp., June 18, 1942 (R. M. Bohart). Arizona: Upper Basin, Sabino Canyon, Sa. Catalina Mts., 1 ♀ at *Phacelia ramosissima* Dougl., April 22, 1949 (JCB).

Ps. rohweri is known from California and parts of Arizona (the published records of *texanus* for Tempe, Globe and Phoenix refer to *rohweri*). *Ps. rohweri* has been taken at *Phacelia* only. It is very closely related to *Ps. texanus,* differing mainly in the pure white, not yellowish, markings.

10. *Pseudomasaris* (*H.*) *bariscapus* Bradley

More information is urgently needed for this species which is known only from the male holotype collected at Quartzite, Arizona.

11. *Pseudomasaris (H.) phaceliae* Rohwer

More information is needed for this species also. It is known only from New Mexico where it was collected attending *Phacelia.*

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AN ASIATIC TINGID NEW TO NORTH AMERICA (HETEROPTERA)

By Norman S. Bailey
Boston University

In studying a collection of Tingidae from the New Haven Connecticut Agricultural Experiment Station, two somewhat damaged specimens of an unfamiliar *Stephanitis* were noted. Since no description of the species could be found in the literature dealing with American species, they were sent to Dr. Reece I. Sailer for determination. They proved to be *Stephanitis globulifera* (Matsumura) when compared with specimens in the National Museum. The species was first described by Matsumura as *Tingis globulifera* in 1905. Later Horváth (1912) properly transferred it to the genus *Stephanitis* and redescribed it in some detail. In a 1930 publication Matsumura supplied an English translation of the description which is not very satisfactory and a very small, unsatisfactory figure is also given. Since these three references are not generally available, it seems desirable to include a brief comparative description of this recent addition to our insect fauna.

The two specimens mentioned above were sent to the Experiment Station by Mrs. L. B. Winton of Greenwich in late October of 1946. Therefore, correspondence was initiated to gather more details of their occurrence. Mrs. Winton kindly kept me well informed concerning the appearance and development of the population in her garden during the summer of 1950. However, it was after mid-August before many adults were observed. On August twenty-third I visited her garden and found a heavy infestation of nymphs and adults (mostly somewhat teneral) on a splendid specimen of *Pieris japonica* (Thunb.) Don planted in a sheltered corner between the house and an open porch. More than 150 adults were collected in a few minutes and a score or so more were kept alive for further study.

Mrs. Winton reported that the lace-bugs were first troublesome on the *Pieris* in 1945. By the following year they were destructively abundant. For a time she considered removal of the host plant because it was so seriously injured by them. However, by frequent spraying, continued intermittently even throughout the mild winter of 1949-50, the population was somewhat controlled and the plant was still vigorous at the time of my visit.

The late appearance of the adults suggests that this species overwinters in the egg stage as do the other two species of *Stephanitis* that occur in New England and that also infest members of the plant family Ericaceae. Of added interest is the fact that *Stephanitis pyrioides* (Scott) was collected on a deciduous azalea on the opposite side of the house. This species was not found on *Pieris*. However, a few specimens of *S. globulifera* were associated with *S. pyrioides* on the azalea. Such other ericaceous plants as *Kalmia* and *Rhododendron* in her garden supported no lace-bugs at that time.

It is evident that this recently introduced species may become a serious pest of *Pieris* and possibly of other ornamental Ericaceae. Through Dr. C. L. Remington I learn that for two or three years the nurserymen of Fairfield County, Connecticut have complained of serious damage to *Pieris* by lace-bugs. Since other species are not known to feed on that host, it is apparent that *S. globulifera* is already well established. At this time it is only possible to suggest that eggs of the species were probably introduced before 1945 in the foliage of evergreens shipped from Japan or elsewhere. Mrs. Winton knew of infested plants in four or five gardens within three to eight miles of her home. She thought these infestations were probably of earlier origin than the one on her *Pieris*.

The following notes provide criteria for the identification of the three species of *Stephanitis* now established in the northeast. Both *S. pyrioides* (Scott) and *S. globulifera* (Matsumura) may be readily distinguished from *S. rhododendri* Horváth by their somewhat greater length, by their darker hood and hemielytral markings (which become intensely black in *S. globulifera*), by their much more inflated hoods (again extreme in *S. globulifera*), and by their much abbreviated lateral carinae. The paranota of *S. rhododendri* flare conspicuously. This species also differs from both the other species in the greater width of the hemielytra and in the abundance of silky setae on all the nervures of the membranous parts.

The differences between *S. pyrioides* and *S. globulifera* are less obvious, but, nevertheless, pronounced. The most noticeable distinguishing features include the conspicuously dark color pattern of *S. globulifera*. In this species the entire hood of mature specimens is black. All the pronotal (including paranotal) nervures, except the apex of the median carina, are black as are most of the hemielytral nervures. Areolae of the hood, the discoidal, and the sutural areas are fumeus as are the cells of the basal and apical bands. Although the color pattern of *S. pyrioides* is similar, the paranota and the discoidal elevations are nearly colorless and in all areas the coloration is brownish and much less intense. Only the areolae of the hemielytral bands are fully infuscated.

Interesting differences are seen in the relative proportions of the hoods and pronotal carinae of these two species. In *S. globulifera* the much inflated, globose hood is twice as high at its peak as the crest of the median carina while in *S. pyrioides* the hood and carina are sub-equal in height. Both species have the lateral carinae much reduced in length as compared with *S. rhododendri*. However, in *S. globulifera* they are half again as long as the distance between their anterior ends and the back of the hood while in *S. pyrioides* they are about as long as the distance between their anterior ends and the back of the hood. In *S. globulifera* the hood is much wider than the distance between the lateral carinae while in *S. pyrioides* the hood is only slightly wider. Both species have the paranota almost vertical rather than flaring as in *S. rhododendri*. Although differences in the relative lengths of the antennites and differences in other features can be shown, they are slight and those indicated are adequate for the ready separation of the three species now occurring in New England.

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A Bibliographic Note on Say's Two Tracts of March, 1831, and January, 1832.—In vol. 8 of "Psyche" (1899, pp. 306-308), S. H. Scudder called attention to the existence of a tract entitled "Descriptions of New Species of North American Insects Found in Louisiana by Joseph Barabino," by Thomas Say. This was published at New Harmony, Indiana, with the date March, 1831, printed on the title page, and has 19 numbered pages. Scudder pointed out that the text matter of this tract differed entirely from the one Say published, also at New Harmony, in January, 1832, under the similar title: "New Species of North American Insects Found by Joseph Barabino Chiefly in Louisiana" (16 numbered pages). The text of the 1832 tract was copied by J. LeConte in his edition of Say's "Complete Writings", 1859, vol. 1, pp. 300-309), but not that of the 1831 tract. Although this was made perfectly clear by Scudder, the matter was misunderstood by W. Horn and S. Schenkling, when they prepared their "Index Litteraturae Entomologicae." The entry No. 190018 in this work (1928, vol. 3, p. 1050) is erroneous in two respects. Both tracts are listed under this one item number and the 1831 tract is given as "separate" (or reprint) of the 1832 tract. In addition the text on pp. 300-309 of the LeConte edition is given as covering both tracts. An original of the March, 1831, tract was for many years in the library of the Boston Society of Natural History. Its present location is unknown to the writer. However, the library of the Museum of Comparative Zoology contains a photostat of the original (including a copy of the Boston Society's bookplate). It may be useful to point out that this tract has no introductory remarks nor any special information on localities additional to the statements given with the several descriptions. Furthermore the description of 3 of the 4 new species of Hymenoptera (*Polistes metrica,* p. 15; *Anthophora frontalis,* p. 16; and *Megatchile policaris,* p: 17) are copied almost word for word in Say's later article in Boston Jl. Nat. Hist., vol. 1, pt. 4, 1837 (respectively on pp. 388, 409 and 406). The generic name *Megachile* is also misspelled *Megatchile* in 1837, but the specific name is now spelled *pollicaris*. The description of the fourth species, *Formica mellea* (p. 14) is copied in the first installment of the same article, *Op. cit.,* vol. 1, pt. 3, 1836, p. 286. The 1831 tract also contains a redescription of both sexes of *Xylocopa carolina* Fabricius (pp. 18-19), later reproduced by Say in 1837.—J. Bequaert, Museum of Comparative Zoology, Cambridge, Mass.

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